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MAY/FY06

LONGHORN ARMY AMMUNITION PLANT

Texas

Army Defense Environmental Restoration Program Installation Action Plan

Final 18 July 2006

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Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year Cleanup Program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern, and proposes a comprehensive, installation-wide approach, with associated costs and schedules, to conduct investigations, necessary remedial actions.

In an effort to coordinate planning information between the restoration manager, U.S. Army Environmental Center (USAEC), Longhorn Army Ammunition Plant, executing agencies, regulatory agencies, and the public, an IAP was completed. The IAP is used to track requirements, schedules and tentative budgets for all major Army installation cleanup programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is, therefore, subject to change.

The following persons contributed to the formulation and completion of this Installation Action Plan at the IAP Workshop held 10-11 May 2006:

Engineering & Environment Inc. for USAEC

EPA, Region VI

Longhorn AAP

Shaw Environmental

TCEQ

USACE- Tulsa

US Army Environmental Center

USFWS

Acronyms & Abbreviations

~	approximately
ACL	alternative cleanup levels
AEDB-R	Army Environmental Database- Restoration
AST	aboveground storage tank
BIP	blow in place
BRAC	Base Realignment and Closure
BRACO	BRAC Office
CERCLA	Comprehensive Environmental, Response, Compensation and Liability Act
CLI	Caddo Lake Institute
COPC	contaminants of potential concern
COPEC	contaminants of potential ecological concern
CTC	cost-to-complete
cy	cubic yards
DCA	dichloroethane
DCE	dichloroethylene
DNAPL	dense nonaqueous phase liquid
EE/CA	engineering evaluation/cost analysis
EOD	Explosive Ordnance Detachment
EPA	Environmental Protection Agency
ER,A	Environmental Restoration, Army (formerly DERA)
FFA	Federal Facility Agreement
FS	feasibility study
FY	fiscal year
GW	groundwater
GWTP	groundwater treatment plant
HRS	hazard ranking score
IAP	Installation Action Plan
INF	Intermediate-Range Nuclear Force
IRA	Interim Remedial Action
IRP	Installation Restoration Program
K	thousand
LAP	Load, Assemble, and Pack
LHAAP	Longhorn Army Ammunition Plant
LTM	long-term management
LTO	long-term operation
LUC	land use controls
M	million
MEC	munitions and explosives of concern
MCL	maximum contaminant level
MMRP	Military Munitions Response Program
MNA	Monitored Natural Attenuation
MOA	Memorandum of Agreement
NE	not evaluated
NFA	no further action
NPDES	National Pollution Disposal and Elimination System
NPL	National Priorities List

Acronyms & Abbreviations

OB/OD	open burning/open detonation
O&M	operation and maintenance
PA	preliminary assessment
PBC	Performance-Based Contract
PCB	polychlorinated biphenyls
PP	proposed plan
RA	remedial action
RAB	Restoration Advisory Board
RA(C)	remedial action (construction)
RA(O)	remedial action (operations)
RC	response complete
RCRA	Resource Conservation and Recovery Act
RD	remedial design
REM	removal
RFA	RCRA Facility Assessment
RI	remedial investigation
RIP	remedy-in-place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SI	site investigation
SVOC	semi-volatile organic compounds
SWMU	Solid Waste Management Unit
TAPP	Technical Assistance for Public Participation
TCA	trichloroethane
TCE	trichloroethylene
TCEQ	Texas Commission on Environmental Quality (formerly TNRCC
TMG	Transition Management Group
TNRCC	Texas Natural Resource Conservation Commission (now TCEQ)
TNT	trinitrotoluene
TPH	total petroleum hydrocarbons
TRC	Technical Review Committee
TWC	Texas Water Commission
UEP	unlined evaporation pond
USACE	United States Army Corps of Engineers
USACHPPM	United States Army Center for Health Promotion and Preventive Medicine (changed to USAEC)
USAEC	United States Army Environmental Center
USAEHA	United States Army Environmental Hygiene Agency (changed to USACHPPM)
USFWS	United States Fish and Wildlife Service
USSR	United Soviet Socialist Republic (Russia)
UST	Underground Storage Tank
UXO	unexploded ordnance
VOC	volatile organic compounds

Installation Information

Installation Locale: Longhorn Army Ammunition Plant (LHAAP) is located in central east Texas in the northeast corner of Harrison County, approximately 14 miles northeast of Marshall, Texas, and approximately 40 miles west of Shreveport, Louisiana. The installation occupies 8,416 acres between State Highway 43 and the western shore of Caddo Lake. The area surrounding LHAAP is primarily rural and consists of forest lands; the small towns of Karnack and Uncertain, Texas; Caddo Lake; and Caddo Lake State Park.

Installation Mission: LHAAP was an Army Materiel Command installation. The Army declared LHAAP excess to its needs in July 1997. While active, the installation's mission was the production of trinitrotoluene (TNT) (World War II era only), pyrotechnic items and rocket motors. In 2002, the Base Realignment and Closure (BRAC) Division was tasked with its disposal.

Lead Organization:
Base Realignment and Closure Division

Leading Executing Agency: US Army Corps of Engineers, Tulsa District

Regulatory Participation:
Federal: U.S. Environmental Protection Agency, Region VI
State: Texas Commission on Environmental Quality

National Priorities List (NPL) Status: - NPL listing August 1990
- Federal Facility Agreement, 1991

Installation Restoration Advisory Board (RAB)/Technical Review Committee (TRC)/Technical Assistance for Public Participation (TAPP) Status: The first RAB meeting was held in December 2004. The RAB meets quarterly.

Installation Program Summaries
IRP
Primary Contaminants of Concern: Explosives, VOCs, metals, perchlorate, TNT, chlorinated solvents
Affected Media of Concern**:** Groundwater, soil, surface water, sediment
Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC)**:** 2007/2015
Funding to date (up to FY05): $87,074K
Current year funding (FY06): $10,966K
Cost-to-Complete (FY07+): $14,904K

MMRP:
Primary Contaminants of Concern**:** UXO
Affected Media of Concern**:** Soil
Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC)**:** 2014
Funding to Date (through FY05): $1,174K
Cost-to-Complete (FY07+): $5,522K

Cleanup Program Summary

Installation Historic Activity:

LHAAP was established in October 1942 with the primary mission of producing 2,4,6-trinitrotoluene (2,4,6-TNT) flake. Monsanto Chemical Company was the first contract operator of the plant. Production of 2,4,6-TNT continued through World War II until August 1945, when the plant went on standby status until February 1952. From 1952 until 1956, Universal Match Corporation was the contracting operator, producing such pyrotechnic ammunition as photoflash bombs, simulators, hand signals, and tracers for 40mm ammunition. Thiokol assumed this responsibility, along with rocket motor production, with the departure of Universal Match Corporation in 1956. Production of rocket motors continued to be the primary mission of LHAAP until 1965, when the production of pyrotechnic and illuminating ammunition was re-established.

Prior to 1994, operations consisted of compounding pyrotechnic and propellant mixtures, load assemble and pack (LAP) activities, accommodating receipt and shipment of containerized cargo, and maintenance and/or layaway of standby facilities and equipment as they apply to mobilization planning. The installation was also responsible for static firing and elimination of Pershing I and II rocket motors in compliance with the Intermediate-Range Nuclear Force (INF) Treaty in effect between the United States and the former USSR. In October 1996, a lease in excess of 1,000 of the 8,493 acres was granted to the Caddo Lake Institute (CLI) for biological and ecological studies by local schools and universities.

The plant became inactive and excess to the Army's needs in July 1997. In July 1998, the Army contracted Earth Tech, Inc. to liquidate all personal property and specific installed property. That contract was completed in FY00. In 1999, the Army contracted with Project Development Corp. to demolish specific structurally unsafe buildings. Demolition of all remaining buildings began in 2003. Its projected completion is 2006. A Memorandum of Agreement (MOA) between the Army and US Fish and Wildlife Service (USFWS) was signed on 21 October 2000 designating an area consisting of approximately 7,200 acres for establishment of a wildlife refuge overlay at LHAAP. LHAAP was transferred to the Base Realignment and Closure Office (BRACO) in Oct 2002 to manage as an excess property. In April 2004 the Army and the USFWS entered into a MOA that set forth the transfer process of LHAAP acreage. Since May 2004, approximately 6000 LHAAP acres have been transferred to the USFWS. The USFWS manages these acres as the Caddo Lake National Wildlife Refuge within the perimeter fence of the former installation. The CLI Lease with the Army was transferred to the USFWS with the affected acreage. At present, the Army maintains the original installation perimeter fence and controls access to the former installation with gates and security guards.

Regulatory Status:

LHAAP was placed on the National Priorities List (NPL) on Aug 9, 1990. After being listed on the NPL, LHAAP, the U.S. Environmental Protection Agency (EPA), and the Texas Water Commission (TWC) (now called the Texas Commission on Environmental Quality [TCEQ]) entered into a Comprehensive Environmental, Response, Compensation and Liability Act (CERCLA) Section 120 Agreement for remedial activities at LHAAP. The

CERCLA Section 120 Agreement, referred to as the Federal Facility Agreement (FFA), became effective December 30, 1991. The Installation applied for a RCRA Part A Permit.

A RCRA Part B Permit was signed February 1992. As a result, a RCRA Facility Assessment (RFA) identified 57 potential sites of concern. Since that time, scrubbing of the list (removal of non-ER,A eligible sites, redundancies, etc.) has resulted in the current Army Environmental Database - Restoration (AEDB-R) list of 47 sites.

While the Army leads the IRP at LHAAP, a close working relationship with the regulatory community has been developed. Remedial Project Managers from TCEQ and EPA Region VI work closely with Army personnel in planning and implementing IRP goals and activities. A cooperative teamwork environment has proven helpful in focusing energies of all the stakeholders on achieving transfer and restoration goals.

Program Progress:

IRP: A ROD for Site 12 will be completed this FY under the Total Environmental Restoration Contract (TERC). In addition, NFA RODs for Sites 67, 37, 32, 48, and 53, will be completed to the proposed plan stage this FY, with the RODs to be completed when the ecological risk assessment has been completed. Documentation of the RC status of a number of sites is problematic and may impede transfer progress. The performance based contract was awarded to Shaw Environmental in September 2005 for all remaining environmental restoration with a few minor exceptions.

The ecological site-wide risk assessment has presented a major roadblock to finalizing RODs at a number of environmental sites. The PBC contractor has made significant progress toward resolution of the points of disagreement between the Army and regulatory agencies with the completion of the risk assessment expected in the next year.

Another issue has been perchlorate and the absence of a clean up standard. The PBC contractor has continued to work within Army guidelines to clean-up perchlorate contaminated soils and groundwater in accordance with the new Army guidance.

Previous issues of chromium in groundwater and alternate concentration limits (ACLs) have been resolved.

Longhorn is implementing NAVY LUC principles under the ROD for LHAAP-12.

MMRP: The site investigations for three sites are final. An RI/FS is underway and is expected to be completed in FY07.

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Installation Restoration Program

IRP Summary

Total AEDB-R IRP Sites / AEDB-R sites with Response Complete: 47/37 (1 RC with LTM)

Different Site Types:

3 Burn Areas	2 Disposal Pits/ Dry Wells
7 Landfills	15 Storage Areas
8 Spill Site Areas	2 Surface Impoundments/ Lagoons
1 Above Ground Storage Tank	2 Underground Storage Tanks
2 Waste Lines	4 Waste Treatment Plants
1 Other (LHAAP-053)	

Most Widespread Contaminants of Concern: Trichloroethene, Methylene Chloride, Explosives, Metals, Perchlorate

Media of Concern: Groundwater, Soil, Surface Water, Sediment

Completed Removal (REM)/Interim Remedial Action (IRA)/Remedial Action (RA):
UEP Sludge removed and pond capped, 1986, Closed under RCRA
Removal Action for waste sumps, 1997, Total Cost: $1.83 M
Landfills 12 & 16 capped, 1997 & 1998, Total Cost: $5.3 M
Removal 30K cy soil at Site 18, 1998, Total Cost: $6.5 M
Collection Trenches & GWTP (including perchlorate treatment unit) 1998/2000, Total Cost: $21.5 M

Total IRP Funding

Prior years (up to FY05):	$ 85,510.7K
Current year funding (FY06):	$ 10,965.3K
Future Requirements (FY07+):	$ 14,904.0K
Total:	$111,380.0K

Duration of IRP
Year of IRP Inception: 1988
Year of IRP RIP/RC: 2007/2015
Year of IRP Completion including Long-Term Management (LTM): 2045

Currently, data gap investigations are primarily complete at Group 2 and Group 4 sites with the exception of the PBC contractor conducting additional limited sampling activities at several sites to support forthcoming feasibility studies. Installation-wide background studies for soil, surface water and sediment have been completed. Data from these investigations will be used to supplement data collected previously during remedial investigation and to update risk assessments. Feasibility studies have been completed for all applicable TERC sites with proposed plans anticipated for this FY. PBC is conducting additional sampling activities at several sites to finalize outstanding feasibility studies and EE/CAs. Proposed plans and records of decision are planned after feasibility studies are finalized. An installation-wide ecological risk assessment is continuing and is expected to be completed in FY07.

Sediment samples collected by the Army from Caddo Lake near the mouths of two branches of Goose Prairie Creek indicate elevated lead and mercury. The sampling locations are outside the installation boundary. An investigation of contaminants in fish tissues from three Caddo Lake Sites, one of which is upgradient at Clinton Lake, was funded by USEPA Region 6 and performed by TCEQ Region 5 in 2004. It concluded that mercury was present at elevated levels from all three sites, that dioxin was also present but highest at Clinton Lake, a lake upstream from LHAAP, and that pesticides, PCBs and perchlorate were not detected in either edible fish fillets or whole fish.

Approximately 6,300 acres of the plant have transferred to the USFWS and are being operated as the Caddo Lake National Wildlife Refuge. The remaining acreage is also expected to transfer to USFWS over the next three or more years.

Cleanup Exit Strategy: Continue to perform actions outlined in the IAP contingent on funding levels.

Sites have been evaluated based on potential human exposure, and interim RODs will be pursued to address any human health risks.

The RI that was completed in 2002 did not include any perchlorate sampling data. A separate perchlorate investigation report was issued in FY03 and finalized in FY05.

Previous Studies

1979

- Assessment of Contaminant Migration, Longhorn Army Ammunition Plant, the Robert H. Balter Co., 1-Apr-79

1980

- Installation Assessment of Longhorn Army Ammunition Plant, Report No. 150. , U.S. Army Toxic and Hazardous Materials Agency, 1-Feb-80
- Land Disposal Study No. 38-26-0104-81, LHAAP, 23 January - 8 February 1980, USAEHA, 26-May-80

1981

- Wastewater Engineering Special Study No. 32-62-0182-82., USAEHA, Regional Div., South, 1-Sep-81
- Phase II, Hazardous Waste Management Special Study No. 39-26-0147-83, DARCOM Open-Burning/Open-Detonation Grounds Evaluation, LHAAP, 31 July - 3 August 1981, USAEHA, 1-Sep-83

1984

- Closure of Unlined Evaporation Pond, Kindle, Stone and Associates, 15-Jun-84
- Longhorn Army Ammunition Plant Contamination Survey, Contract # DAAA09-78-C-3004, Environmental Protection Systems, Inc., 1-Jun-84

1986

Closure Report, Unlined Evaporation Pond, Longhorn Army Ammunition Plant, Army Corps of Engineers, Tulsa, 1 Jun 86

1994

- Interim Risk Assessment for Burning Ground 3 & Unlined Evaporation Pond Sites (18 & 24) , Army Corps of Engineers, Tulsa, 18-Jan-94
- Soil and Groundwater Background Concentration Study , Army Corps of Engineers, Tulsa, 12-May-94
- Remedial Investigation /Feasibility Study Report for Areas 13 & 14, Army Corps of Engineers, Tulsa, 1-Jun-94
- Draft Final Workplan Addendum Soil and Groundwater Background Concentration Study, Army Corps of Engineers, Tulsa, 29-Jun-94

1995

- Final Soil Background Concentration Report (Revised), Army Corps of Engineers, Tulsa, 30-Mar-95
- Groundwater Background Concentration Report , Army Corps of Engineers, Tulsa, 9-May-95
- Final HydroGeologic Assessment Report , Army Corps of Engineers, Tulsa, 11-May-95
- Final Prop Plan of Action for Sites 13 & 14, Army Corps of Engineers, Tulsa, 21-Jun-95
- Groundwater Sampling Results-May 95, Interim Remedial Action-Phase III, Burning Ground 3 and UEP, LHAAP 18 & 24, Army Corps of Engineers, Tulsa, 26-Jun-95
- Final Remedial Investigation/Feasibility Study Report for Sites 13 & 14, Army Corps of Engineers, Tulsa, 28-Jun-95

1995 (cont.)

- Final Record of Decision for Early Interim Remedial Action at Landfill Sites 12 & 16, Army Corps of Engineers, Tulsa, 10-Jul-95

1996

- Final Work Plan for Phase III Interim Remedial Action at Burning Ground 3, Army Corps of Engineers, Tulsa, 3-Jan-96
- Group 4 Baseline Risk Assessment Work Plan, Army Corps of Engineers, Tulsa, 5-Feb-96
- Final Project Work Plans, Interim Remedial Action Landfills 12 & 16 Caps, Army Corps of Engineers, Tulsa, 10-Jun-96
- Group 4 Sumps Groundwater Monitoring Quarterly Report , Army Corps of Engineers, Tulsa, 13-Jun-96
- Draft Final Design Analysis Report for the Site 16 Time Critical Removal Action, Army Corps of Engineers, Tulsa, 28-Jun-96
- Draft Final Comprehensive Chemical Data Acquisition Plan for the RI/FS , Army Corps of Engineers, Tulsa, 3-Jul-96
- Draft Final Field Summary Report for the Phase II, Group 2 Sites Remedial Investigation, Army Corps of Engineers, Tulsa, 17-Jul-96
- Treatment Simulation and Toxicity Testing Results of Site 16 Groundwater, Army Corps of Engineers, Tulsa, 8-Aug-96
- Final Project Construction Drawings, Interim Remedial Action, Landfill 12 & 16 Caps, Army Corps of Engineers, Tulsa, 21-Aug-96

1997

- Final Remedial Investigation Report Group 1 Sites (Sites 1, 11, 27, and XX) and Vol. 2 Baseline Risk Assessment, Army Corps of Engineers, Tulsa, 30-Apr-97

1998

- Final Record of Decision for Early Interim Remedial Action at Group 1 Sites, Army Corps of Engineers, Tulsa, Feb. 1998
- Environmental Baseline Study, Army Corps of Engineers, Tulsa, Apr-98
- Group 2 Final Workplan , Army Corps of Engineers, Tulsa, Mar-98
- Group 4 Final Workplan, Army Corps of Engineers, Tulsa, Jul-98

2000

- Site 16 Risk Assessment, Army Corps of Engineers, Tulsa, Mar-00
- Final Site 16 Remedial Investigation Report, Army Corps of Engineers, Tulsa, Oct-00
- Final Remedial Investigation Report for Group 2 Sites, Jacobs Engineering Group, Inc, April, 2001
- Hazardous and Medical Waste Study - Response Complete Verification and Relative Risk Site Evaluation for the Longhorn Army Ammunition Plant, USACHPPM, 10-Jul-00

2001

- Baseline Risk Assessment: Human Health for Site 16 Landfill Remedial Investigation and Feasibility Study, Jacobs Engineering Group, Inc, June, 2001

2001 (cont.)

- Final Ecological Risk Assessment: Supplement to Site 16 Landfill Remedial Investigation Report, Jacobs Engineering Group, Inc, October, 2001

2002

- Final Group 4 Sites Remedial Investigation Report (Sites 35A, 35B, 46, 47, 48, 50, 60, and Goose Prairie Creek), Jacobs Engineering Group, Inc, January, 2002
- Final Group 4 Sites Remedial Investigation Addendum (Sites 04, 08, 67, and Hydrocarbon Study), Jacobs Engineering Group, Inc, February, 2002
- Final Group 2 Sites Remedial Investigation Report Addendum (Site 49), Jacobs Engineering Group, Inc, February, 2002
- Final Feasibility Study for Site 16, Jacobs Engineering Group, Inc., March 2002
- Final Five-Year Review for Sites 18 & 24 (Burning Ground No. 3), Site 16 (Old Landfill), and Site 12 (Sanitary Landfill), Complete Environmental Service, August, 2002
- Final Group 2 Sites Baseline Human Health and Screening Ecological Risk Assessment (Sites 12, 17, 18/24, 29, 32, 49, Harrison Bayou, and Caddo Lake), Jacobs Engineering Group, Inc, August, 2002

2004

- Final Installation-Wide Background Study Workplan, Shaw Environmental and Infrastructure, 1/9/2004
- Final Groundwater Data Gaps Investigation Workplan (Groups 2 and 4), Shaw Environmental and Infrastructure, 2/24/2004
- Final Technical Memorandum: Modeling Approach for Derivation of Soil and Groundwater Concentrations Protective of Surface Water and Sediment, Shaw Environmental and Infrastructure, 3/26/2004
- Final Sediment Sampling Report for Caddo Lake and Clinton Lake, Shaw Environmental and Infrastructure, April, 2004
- Final Environmental Condition of Property I, Shaw Environmental and Infrastructure, 5/20/2004
- Final Background Soil Study Report, Shaw Environmental and Infrastructure, 7/13/2004
- Draft Final Feasibility Study for LHAAP-67, Aboveground Storage Tanks, Shaw Environmental and Infrastructure, August, 2004
- Final Evaluation of LHAAP-45 Surface Soil Analytical Data, Shaw Environmental and Infrastructure, September, 2004
- Final Groundwater Data Gaps Investigation Workplan (Groups 2 and 4), Addenda 1 and 2, Shaw Environmental and Infrastructure, September, 2004
- Final Environmental Condition of Property II, Army Corps of Engineers, Tulsa, November, 2004

2005

- Final Site 12 Feasibility Study, Shaw Environmental and Infrastructure, January, 2005
- Final Environmental Site Assessment Phase I and II Report, Plexus Scientific Corporation, 25 February 2005

2005 (cont.)

- Final Feasibility Report for Site 12 Addendum (Revision 2), Shaw Environmental and Infrastructure, March, 2005
- Final Proposed Plan for Landfill 12 (LHAAP-12), Shaw Environmental and Infrastructure, 23 March 2005
- Final Site Inspection Report for the Military Munitions Response Program, engineering-environmental Management, Inc., June 2005
- Final Feasibility Study for LHAAP-67 (Aboveground Storage Tank Farm), Shaw Environmental and Infrastructure, Aug 2005
- Final Feasibility Study for LHAAP-35B (37) (Chemical Laboratory), Shaw Environmental and Infrastructure, October, 2005
- Final Site Evaluation Report for LHAAP-32 (Former Waste TNT Disposal Plant), Shaw Environmental and Infrastructure, November 2005

2006

- Final Installation-Wide Work Plan, Shaw Environmental and Infrastructure, January 2006
- Decision Documentation for LHAAP-03 (Wastewater Collection At Paint Shop), LHAAP-06 (Building 54F), and LHAAP-23 (Building 707-C Storage Area for PCBs), Shaw Environmental and Infrastructure, January 2006
- Draft Final Site Evaluation Report for LHAAP-48 (Former Igniter Production Area) and LHAAP-35C(53) (Former Static Test Area), Shaw Environmental and Infrastructure, March 2006
- Final Work Plan for Engineering Evaluation / Cost Analysis for Military Munitions Response Program, CAPE, March 2006
- LHAAP-12 ROD
- LHAAP-12 Draft Final LUC/RD
- LHAAP-32 Draft Final Proposed Plan
- Draft Final Site Evaluation Report, LHAAP-02
- Work Plan Addenda for LHAAP-04, 07, 46, 51, 35/36, 29, Pistol Range, and Chromium Speciation
- Draft Results of Additional Investigations at Pistol Range and LHAAP-46 (Building 407)
- Remainder of PBC docs that have been submitted
    - Workplans
    - Summary report for 46 and pistol range (Draft)
    - Evaluation Report for 02 (Draft)

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Installation Restoration Program Site Descriptions

LHAAP-012
ACTIVE LANDFILL (SWMU 12)

SITE DESCRIPTION

Landfill 12 (previously called the Active Landfill) was used for disposal of non-hazardous industrial waste. The landfill had been used intermittently since 1963. Continuous use of the landfill began in approximately 1978. Although the back section had been previously closed, the front section of the landfill continued to be used until its closure in March 1994. Site investigations conducted in 1993 concluded that an early interim remedial action (landfill cap) was necessary to reduce further contamination to the groundwater. The cap was completed in 1997 using treated soils from LHAAP-18 as subgrade fill. Cap maintenance started in 1998 and the first 5 year review was completed in 2002.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
VOCs

MEDIA OF CONCERN:
Groundwater

PHASES	Start	End
PA	197906	198705
SI	197906	198705
RI/FS	199008	200509
IRA	199509	200509
LTM	201509	204509

RC: 200509

The RI was completed in 2002. Groundwater analyses showed that some metals, chlorides, VOCs, explosive compounds and low levels of perchlorate were present. Surface water and sediment sample analyses showed similar contamination. Low levels of perchlorate were also detected in the soils. In three sampling rounds (Feb 2003, Feb 2004 and Dec 2004), perchlorate was undetected with reporting limits of 4 ug/L in the first two rounds and only detected twice when a method with a lower reporting limit (0.2 ug/L) was used. Chromium in groundwater is now believed to be related to stainless steel casing. In January 2006, the 12 wells with stainless steel and screen were removed. Four new wells were installed for long-term monitoring using PVC casing and screen.

The FS was finalized in 2005. The recommended final remedy is monitored natural attenuation (MNA) with land use controls consisting of cap protective provisions and groundwater restrictions. Proposed plan addresses human and ecological risk. The ROD and RD addendum will be finalized this FY.

The surrounding sediment and surface water is being evaluated as part of the plant wide eco-risk assessment which is being revised based upon regulatory comments.

CLEANUP STRATEGY

Continue land use controls for cap maintenance. Groundwater restrictions and MNA will continue in affect until standards are met. It is expected to last beyond 30 years.

As a part of LTM, cap maintenance, MNA and 5 year reviews beginning 2007 will be performed under the PBC. LTM after 2015 will be funded under a new contract mechanism.

LHAAP-016
OLD LANDFILL (SWMU 16)

SITE DESCRIPTION

Landfill 16 (formally called the Old Landfill, ~22 acres) was originally used for disposal of products generated from the TNT Wastewater Treatment Plant. However, a variety of waste was disposed of in the landfill until the 1980s. Waste may have included burned rocket motor casings, substandard TNT, barrels of chemicals, oil, paint, scrap iron and wood. VOCs and metals above action levels have been found in the soil, surface water and groundwater around the site. Low levels of explosive compounds were detected in groundwater.

Site investigations conducted in 1993 concluded that an early interim remedial action (landfill cap) was necessary to reduce further contamination to the groundwater. The cap was completed in 1998 using treated soils from LHAAP-18 as subgrade fill. Eight extraction wells were installed in late 1997 to contain contamination that was seeping from groundwater into Harrison Bayou. Groundwater extracted from the Landfill 16 containment system is piped to the LHAAP-18 GWTP.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
VOCs, Perchlorates

MEDIA OF CONCERN:
Groundwater, Surface Water, Soil

PHASES	Start	End
PA	197906	198705
SI	197906	198705
IRA	199410	200509
RI/FS	199008	200509
RD	200508	200609
RA(C)	200508	200709
LTM	201509	204509

RC: 200709

Perchlorate was detected in groundwater at this site in 2000. VOCs and perchlorate have been detected in the surface water.

The RI was completed in 2002 and the FS is in draft final form. A 5 year review was completed in 2002. Quarterly surface water sampling of the Harrison Bayou area has not shown significant contamination.

A research and development project for enhanced in situ bioremediation (VOCs, perchlorate and explosives in groundwater) was started in 2003.

Note: It is assumed that ecological concerns, once completely evaluated, will be addressed with the final remedy at this site. Treated soil from LHAAP-018 was disposed of at this site.

CLEANUP STRATEGY

This site is being addressed under PBC through August 2015. Any follow on actions will be funded under a separate contract mechanism.

LHAAP-017
NO 2 FLASHING AREA BRN GROUND (SWMU 17)

SITE DESCRIPTION

This site (~500 x 600 ft) was used for burning bulk TNT, photoflash powder, and reject material from Universal Match Corporation's production processes. The site was operated as a burning ground from 1959 until 1980. Buildings razed at Site 29 (Former TNT production area) in 1959 were burned at Burning Ground No. 2/Flashing Area (LHAAP-17). TNT has been detected in surface soils. This site is situated ~400-500 feet southwest of Burning Ground No. 3.

Waste residues were removed in 1984 and the area grassed over. VOCs and explosive compounds were found in the groundwater. Explosive compounds were found in the soil. Perchlorate was detected at this site in 2000 (groundwater 300 ppm, less in soil).

The RI was completed in 2002 and the FS is in draft form. Additional data gap studies were completed in 2004.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN: Explosives, VOCs, Perchlorates

MEDIA OF CONCERN: Soil, Groundwater

PHASES	Start	End
PA	197906	198705
SI	197906	198705
RI/FS	199008	200609
RD	200508	200704
RA(C)	200508	200709
LTM	201509	204509

RC: 200709

A research and development project for enhanced in situ bioremediation (VOCs, perchlorate and explosives in soil and groundwater) was started in 2002 and completed in 2004. Results indicate that perchlorate contamination was reduced.

CLEANUP STRATEGY

This site is being addressed under PBC through August 2015. Any follow on actions will be funded under a separate contract mechanism.

LHAAP-018
BURNING GROUND/WASHOUT POND (SWMU 18)

SITE DESCRIPTION

This site, also known as Burning Ground No. 3, began operations in 1955. It was used for the treatment, storage, and disposal of solid and liquid explosives, pyrotechnics, and combustible solvent wastes by open burning, open detonation and burial. The Unlined Evaporation Pond (UEP) (LHAAP-024) was constructed in 1963 within Burning Ground No. 3. Explosive compounds, VOCs, and metals were detected in soils and groundwater. In addition, perchlorate was detected in groundwater in 1998. In 1986, sludge from the UEP was removed and the area was capped. Quarterly monitoring has been conducted at the site since closure of the UEP.

In May 1995, an IRA ROD was signed. This IRA addressed soil and shallow groundwater contamination. In 1997, 30,000 cy of soil was excavated and treated. The treated soil was used as fill in LHAAP-012 and -016. A Groundwater Treatment Plant (GWTP) with approximately 5,000 feet of interception collection trench has been installed to control migration of contaminated groundwater. The extracted groundwater is discharged into Harrison Bayou after treatment. Perchlorate was detected at this site in 2001 and a fluidized bed reactor treatment system was installed.

The RI was completed in 2002 and the FS is in draft form. Additional data gap sampling was completed in 2004.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN: VOCs, Heavy Metals, Perchlorates

MEDIA OF CONCERN: Soil, Groundwater, Surface Water

PHASES	Start	End
PA	197906	198705
SI	197906	198705
RI/FS	199008	200609
RD	200508	200704
IRA	199503	200709
RA(C)	200508	200709
LTM	201509	204509

RC: 200709

CLEANUP STRATEGY

This site is being addressed under PBC through August 2015. Any follow on actions will be funded under a separate contract mechanism.

LHAAP-024
FORMER UNLINED EVAP POND (SWMU 24)

SITE DESCRIPTION

Burning Ground No. 3 (LHAAP-018) started operation in 1955. It was used for the treatment, storage, and disposal of solid and liquid explosives, pyrotechnics, and combustible solvent wastes by open burning, open detonation and burial. The Unlined Evaporation Pond (UEP) was constructed in 1963 within Burning Ground No. 3. Explosive compounds, VOCs, and metals were detected in soils and groundwater. In addition, perchlorate was detected in groundwater in 1999. In 1986, sludge from the UEP was removed and the area was capped. Quarterly monitoring has been conducted at the site since closure of the UEP.

In May 1995, an IRA ROD was signed. This IRA addressed soil and shallow groundwater contamination. In 1997, 30,000 cy of soil was excavated and treated. The treated soil was used as fill in LHAAP-012 and -016. A Groundwater Treatment Plant (GWTP) with approximately 5,000 feet of interception collection trench has been installed to control migration of contaminated groundwater. The extracted groundwater is discharged into Harrison Bayou after treatment. Perchlorate was detected at this site in 1999 and a fluidized bed reactor treatment system was installed in 2001.

The RI was completed in 2002 and the FS is in draft form. Additional data gap sampling was completed in 2004.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN: VOCs, Heavy Metals, Perchlorate

MEDIA OF CONCERN: Soil, Groundwater

PHASES	Start	End
PA	199005	199005
SI	199005	199008
RI/FS	199008	200609
RD	200508	200704
IRA	199503	200709
RA(C)	200508	200709
LTM	201509	204509

RC: 200709

CLEANUP STRATEGY

This site is being addressed under PBC through August 2015. Any follow on actions will be funded under a separate contract mechanism.

LHAAP-029
FORMER TNT PRODUCTION AREA (SWMU 29)

SITE DESCRIPTION

The Former TNT Production Area (~ 85 acres) was in operation from April 1943 to August 1945 as a six-line plant with a supporting acid plant. The plant produced 180 million kilograms of TNT throughout the period of operation. A bulk toluene storage area servicing the TNT Production Area was located adjacent to the production area. TNT wastewater (red water) from the production of the TNT was sent through wooden pipelines to a storage tank and pump house, and then to the TNT Wastewater Treatment Plant (LHAAP-032). Cooling water (blue water) from the production area ran through main lines and into an open ditch. The structures, except for the foundations, were demolished and removed in 1959. A portion of the northeast corner of the site (approximately 2 acres) was used for the washout of Pershing 1 and 2 rocket motor casings.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN: VOCs, Perchlorates, TNT

MEDIA OF CONCERN: Soil, Groundwater, Surface Water, Sediment

PHASES	Start	End
PA	197906	198705
SI	197906	198705
RI/FS	199008	200609
RD	200508	200704
IRA	200412	200602
RA(C)	200508	200709
LTM	201509	204509

RC: 200803

Explosive compounds have been detected in soil, surface water, sediment and groundwater samples. High concentrations of VOCs (including TCE and methylene chloride) have been detected in groundwater and methylene chloride DNAPL is suspected. Perchlorate was first detected in groundwater (88 ppm) and soil at this site in 2000.

The RI was completed in 2002 and this site is included in the Group 2 Draft FS. Field work for an EE/CA for soils was being conducted in FY05. LHAAP-049 will be funded under this site and is not in AEDB-R.

CLEANUP STRATEGY

This site is being addressed under PBC through August 2015. Any follow on actions will be funded under a separate contract mechanism.

LHAAP-032
FORMER TNT WASTEWATER PLT (SWMU 32)

SITE DESCRIPTION

The TNT Wastewater Treatment Plant was constructed in 1942 to treat and dispose of wastewater generated at the TNT Production Area (LHAAP-029). The plant was in operation from April 1943 until August 1945. In 1959, most of the facilities at the Wastewater Treatment Plant were removed. The suspected contaminants are explosive compounds and metals contained in explosive manufacturing residues.

Surface water, groundwater, soil and sediment samples were collected in the area. Explosive compounds were detected in soils and sediments along with some elevated levels of metals. A surface water sample was collected in 1991, and the analyses detected low levels of explosive compounds. Groundwater has had no detections of explosives.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN: Explosives, Metals (Mercury)

MEDIA OF CONCERN: Soil, Sediment

PHASES	Start	End
PA	197906	198705
SI	197906	198705
RI/FS	199008	200709

RC: 200709

The RI was completed in 2002. Mercury was detected (fall 2002) in sediment in a building basement. In FY03, the mercury-contaminated soil was removed and the basements were filled. Additional soil and GW sampling was conducted in 2004. No significant contamination was found and previous high detections of explosives were not confirmed.

Proposed plan is in draft final stage. NFA ROD is expected pending completion of site wide Ecological Risk Assessment.

CLEANUP STRATEGY

Draft Proposed Plan will be completed in FY06. The Proposed Plan will be finalized and a NFA ROD will be signed after completion of Ecological Risk Assessment in FY07.

LHAAP-035
SUMPS (145) VARIOUS (PAGE 1 OF 2)

SITE DESCRIPTION

This area of approximately 1,500 acres encompasses two major production areas, a maintenance area, two satellite production areas, a chemical laboratory, and an aboveground solvent tank farm. This site also contained 125 industrial wastewater sumps. The sumps were located in different production areas within LHAAP. Many of the sumps were removed or closed in 1996. Site LHAAP-035 has been expanded to include LHAAP-002, 003, 004, 006, 007, 008, 036, 037, 058, 060 and 068 (Production Area sites).

Several buildings in this site have a history of perchlorate use. Perchlorate contamination has been identified in soil, surface water and groundwater. Interim measures have been implemented to minimize the runoff of perchlorate to Goose Prairie Creek.

Several buildings in this site have a history of perchlorate use. Perchlorate contamination has been identified in soil, surface water and groundwater. Interim measures have been implemented to minimize the runoff of perchlorate to Goose Prairie Creek.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN: Heavy Metals, VOCs, Perchlorates, TNT

MEDIA OF CONCERN: Soil, Sediment, Surface Water, Groundwater

PHASES	Start	End
PA	197906	198705
SI	197906	198705
RI/FS	199301	200606
RD	200508	200606
RA(C)	200508	200707
RA(O)	200508	200709
LTM	201509	204509

RIP: 200709
RC: 200709

The RI was completed in 2002. The initial perchlorate assessment was completed in late FY03.

Any actions that may be needed at LHAAP-002, 003, 004, 006, 007, 008, 036, 037, 058, 060 and 068 will be funded under this site. Closeout actions for LHAAP-046, 047, and 048 not currently listed in AEDB-R, are presently being tracked as part of LHAAP-035. LHAAP-003, 006, 007 and 036 are considered response complete. Documentation for LHAAP-03, 06, and 23 has been accepted by the EPA.

LHAAP-08 and 37 will be addressed through RIP/RC under the TERC and S&R funded LHAAP-67. LTM for these two sites will be addressed through the PBC. All other sites will be addressed under the PBC sites.

CLEANUP STRATEGY

TERC Sites:

LHAAP-008: Draft Final Proposed Plan will be completed in FY06. The Proposed Plan will be finalized and a NFA ROD will be signed after completion of ecological risk assessment in FY07.

LHAAP-037: Draft Final Proposed Plan will be completed in FY06. The Proposed Plan will be finalized and a Final ROD will be signed after completion of ecological risk assessment in FY07. The remedy is expected to contain MNA and groundwater restrictions.

PBC Sites:

All other sites are being addressed under PBC through August 2015. LHAAP-37 will also be addressed under PBC. Any follow on actions will be funded under a separate contract mechanism.

LHAAP-050
FORMER WASTE DISPOSAL FACILITY

SITE DESCRIPTION

This site (~1 acre) received wastewater from the sumps at Plants 2 and 3 from 1955 to the early 1970s. Washout of ammonium perchlorate containers was also performed on site.

VOCs and perchlorate were detected in the soil samples. VOCs, metals and perchlorate were detected in groundwater.

The RI was completed in 2002 and the FS is in draft form. The VOCs in groundwater pose an unacceptable risk. Additional data gap sampling was completed in 2004.

CLEANUP STRATEGY

This site is being addressed under PBC through August 2015. Any follow on actions will be funded under a separate contract mechanism.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN: Heavy Metals, Perchlorate, Chlorinated Solvents

MEDIA OF CONCERN: Soil, Groundwater

PHASES	Start	End
PA	199005	199008
SI	199506	199707
RI/FS	199801	200606
RD	200508	200609
RA(C)	200508	200709
LTM	201509	204509

RC: 200709

LHAAP-067
ABOVE GROUND STORAGE TANK

SITE DESCRIPTION

This site consisted of seven above ground storage tanks (ASTs) containing Number 2 fuel oil, kerosene or solvents. The ASTs had earthen dikes sufficient to contain potential spill. Motor fuel tanks were registered with the state and have been removed. Central Creek runs to the south of this site.

In 2001, VOCs (TCE, 1,1-DCE, 1,2-DCA, 1,1,2-TCA) were detected in groundwater. The data indicates that the impact is limited

The RI was completed in 2002 and the Final FS was completed August 2005.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN: POL, Solvents

MEDIA OF CONCERN: Soil, Groundwater

PHASES	Start	End
PA	199005	199008
SI	199809	199906
RI/FS	200110	200703
LTM	201509	204509

RC: 200705

CLEANUP STRATEGY

Draft Final Proposed Plan will be completed in FY06. The Proposed Plan will be finalized and a Final ROD will be signed after completion of ecological risk assessment in FY07. The remedy is expected to contain MNA and groundwater restrictions.

PBC LONGHORN
PBC AT LONGHORN (PAGE 1 OF 2)

SITE DESCRIPTION

The PBC was awarded September 2005 to Shaw Environmental. The PBC covers the following sites:

Achieve Remedy in Place by September 2007

- LHAAP-02: Vacuum Truck Overnight Parking Lot
- LHAAP-03: Building 722 Paint Shop
- LHAAP-04: Pilot Wastewater Treatment Plant
- LHAAP-06: Building 54F Solvent
- LHAAP-07: Bldg 50G Drum Processing
- LHAAP-16: Old Landfill (SWMU 16)
- LHAAP-17: No. 2 Flashing Area/Burning Ground (SWMU 17)
- LHAAP-18: Burning Ground/Washout Pond (SWMU 18)
- LHAAP-23 Building 707-C Storage Area for PCBs
- LHAAP-24: Former Unlined Evaporation Pond (SWMU 24)
- LHAAP-29: Former TNT Production Area (SWMU 29)
- LHAAP-35: Sumps (145) Various
- LHAAP-36: Explosive Waste Pads (27)
- LHAAP-46: Plant 2/Pyrotechnic Operation
- LHAAP-47: Plant 3 Area, Solid Rocket Fuel Motor Production
- LHAAP-49: Former Acid Storage Area
- LHAAP-50: Former Waste Disposal Facility
- LHAAP-51 Photographic Laboratory Building 60B
- LHAAP-55 Septic Tanks
- LHAAP-58: Maintenance Complex
- LHAAP-60: Former Storage Building 411 & 714
- LHAAP-64 Transformer Storage (Southwest Building of 707-B)
- LHAAP-66 Transformer at Building 401
- LHAAP-68: Mobile Storage Tank Parking Area
- Pistol Range

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
Metals

MEDIA OF CONCERN:
Groundwater

PHASES	Start	End
PA	200501	200503
RD	200504	200508
RA(C)	200508	200709
RA(O)	200508	201509

RIP: 200709
RC: 201509

In addition to the above sites, LTM**/RAO upon achievement of RIP/RC,** will be required for the following sites beginning sometime in 2006:

- LHAAP-08: Sewage Treatment Plant
- LHAAP-12: Landfill 12 (SWMU 12)
- LHAAP-37: Chemical Laboratory Waste Pad
- LHAAP-67: Above Ground Storage Tanks

PBC LONGHORN
PBC AT LONGHORN (PAGE 2 OF 2)

CLEANUP STRATEGY

These sites are being addressed under PBC through August 2015. Any follow on actions will be funded under a separate contract mechanism.

IRP No Further Action Sites Summary

AEDB-R #	Site Title	Documentation/Reason for NFA	NFA Date
LHAAP-001	Inert Burning Grounds (SWMU 1)	ROD for NFA - signed January 1998 (Group 1)	199801
LHAAP-002	Vacuum Truck Overnight Parking Lot	Study Complete, No cleanup required.	198705
LHAAP-003	Building 722- Paint Shop	Study Complete, No cleanup required	198705
LHAAP-004	LHAAP Pilot Wastewater Treatment Plant	Phase I investigation – 1994; Closure of Sumps - completed 1998; WWTP Closed on 9/27/99; RI - completed February 2002;	198705
LHAAP-005	Power House Boiler Pond	RCRA Closure under NPDES Permit(1999)	199901
LHAAP-006	Building 54F Solvent	Study Complete, No cleanup required	198705
LHAAP-007	Building 50G Drum Processing	Closed on 11/27/00; Under investigation.	198705
LHAAP-008	Sewage Treatment Plant	RCRA Closure (for the sludge drying beds but not the plant); FS completed.	198705
LHAAP-009	Building 31-W Drum Storage	RCRA Closure; Closed on 11/18/99; Transferred to the USFWS May 2004	199911
LHAAP-011	Sus Tnt Burial Site at Ave P & Q (SWMU 11)	ROD for NFA - signed January 1998 (Group 1); Transferred to the USFWS May 2004	199801
LHAAP-013	Sus Tnt Between Active & Old Landfill (SWMU 13)	RI/FS - completed June 1995; PP - June 1995; ROD for NFA - signed February 1996(Group 3); Transferred to the USFWS May 2004	199602
LHAAP-014	Area 54 Burial Ground (SWMU 14)	RI/FS - completed June 1995; PP - June 1995; ROD for NFA - signed February 1996 (Group 3); Transferred to the USFWS May 2004	199602
LHAAP-015	Area 49W Drum Storage	RCRA Closure; Closed on 10/14/99; DD Required. Transferred to the USFWS May 2004	198705
LHAAP-019	Construction Materials Landfill	PA/SI – NFA; DD Required; Currently used for demolition debris	198705
LHAAP-023	Building 707 Storage Area PCBS	RCRA Closure; Closed on 11/27/2000; DD Required.	198705
LHAAP-027	South Test Area/Bomb Test Area (SWMU 27)	ROD for NFA - signed January 1998 (Group 1)	199801

AEDB-R #	Site Title	Documentation/Reason for NFA	NFA Date
LHAAP-034	Bldg 701 PCB Storage	PA/SI – NFA; RCRA Closure; Closed on 7/14/00; DD Required; Transferred to the USFWS May 2004	198705
LHAAP-036	Explosive Waste Pads (27)	NFA	198705
LHAAP-037	Chemical Laboratory Waste Pad	RI - completed in February 2002 (Group 4)	199008
LHAAP-039	25X Washout Pad	PP - September 1994; Combined with LHAAP-18/24 IRA - Capping Site 18 1986; IRA - Soil Removal and Capping 1986; LTM - Groundwater Monitoring System Installed 1989; ROD - Early Interim Action 1995; RI - completed April 2001; FS - ongoing	199008
LHAAP-045	Magazine Area	PA/SI – NFA; DD completed August 2004	200408
LHAAP-051	Photographic Laboratory/ Bldg #60B	PA/SI – NFA; DD Required	199008
LHAAP-052	Magazine Area Washout	PA/SI – NFA; DD completed May 1998 (Group 5)	199805
LHAAP-053	Static Test Area	RI - completed in February 2002; Ongoing MMRP investigation	
LHAAP-054	GRD Signal Test Area (LHAAP-XX)	ROD for NFA - signed January 1998 (Group 1)	199801
LHAAP-055	Septic Tank (10)	PA/SI – NFA; DD Required	199008
LHAAP-057	Rubble Burial Site	PA/SI – NFA; DD Required. Transferred to the USFWS May 2004	199008
LHAAP-058	Maintenance3 Complex	RI - completed in February 2002	199506
LHAAP-060	Former Storage Bldg #411 & #714	RI - completed in February 2002; FS - ongoing	200402
LHAAP-061	Potable WTP Sediment Pond	DD Required	199008
LHAAP-063	Burial Pits	PA/SI – NFA; DD completed May 1998;(Group 5) Transferred to the USFWS May 2004	199805
LHAAP-064	Transformer Storage	PA/SI – NFA; DD Required	199506
LHAAP-066	Transformer at Bldg 401	PA/SI – NFA; DD Required	199506
LHAAP-068	Mobile Storage Tank Parking Area		199008
LHAAP-069	Service Station USTs	Corrected under RCRA Guidelines	199306
LHAAP-070	Loading Dock-Magazine Area	PA/SI – NFA; DD completed April 2004; Transferred to the USFWS May 2004	199506

AEDB-R #	Site Title	Documentation/Reason for NFA	NFA Date
LHAAP-071	Oil Spill, Building 813	PA/SI – NFA; Remedial action taken; DD completed April 2004; Transferred to the USFWS May 2004	199506

IRP Schedule

Initiation of IRP: 1980

Past Phase Completion Milestones

Various environmental investigations, studies, and reports have been conducted since 1980 to address possible contamination at LHAAP. LHAAP was progressing towards a RCRA permit when the installation was listed on the National Priority List (NPL). A FFA was signed in December 1991, and the RCRA permit was signed in February 1992. A summary of the current project milestones, based on funding availability, for the remedial activities is given below. Approved regulatory schedules, which are part of the FFA, are included on the following pages to summarize submittal dates for primary and secondary documents.

1986	IRA - Capping LHAAP-018	
	IRA - Soil Removal and Capping LHAAP-024	
1988	RFA Installation	APR
1989	LTM - Groundwater Monitoring System installed at LHAAP-018 & -024	
1992	PA - Initiation at all sites	MAY
1993	RI/FS - Initiated - Group 1 (LHAAP-001, 011, 027, 054)	
1994	IRA - 018 & 024 Design Initiated	OCT
1995	SI - Initiated - Group 5 (LHAAP-050, 052, 060, 063)	JAN
	ROD - Early Interim Action, LHAAP 018 & 024	MAR
	ROD - Interim Action LHAAP 012 &016	JUL
	RI/FS - completed - Group 3 (LHAAP-013, 014)	JUL
1996	ROD - Group 3, NFA	FEB
1997	SI - Completed - Group 5 (LHAAP-050, 052, 060, 063)	JAN
	RI/FS - Completed - Group 1	JUL
	ROD - Group 1	OCT
1998	IRA 12 & 16 Completed	DEC
1999	RI Completed - Site 016	OCT
2000	RA Completed - Site 016	MAR
2001	RI Completed - Group 2	MAY
2002	RI Completed - Group 4	

2005 FS Completed - Site 12
FS Completed – Site 37
FS Completed – Site 67
PP Completed – Site 12

Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates:

• LHAAP-012	Interim NFA ROD	EPA/Installation Commander	200702
• LHAAP-032	ROD	EPA/Installation Commander	200702
• LHAAP-037	ROD	EPA/Installation Commander	200702
• LHAAP-048	ROD	EPA/Installation Commander	200702
• LHAAP-053	ROD	EPA/Installation Commander	200702
• LHAAP-067	ROD	EPA/Installation Commander	200702

Projected Construction Completion Date of IRP: 2015

Schedule for Next Five-Year Review: 2007

Estimated Completion Date of IRP (including LTM phase): 2045

Prior Years Funds

Total Funding Up to FY04: $83,277K

Prior Years Funds

Year	Site Information		Expenditures	FY Total
FY05	LHAAP-012	IRA	5.00	
	LHAAP-016	IRA	4.00	
	LHAAP-016	RI	37.44	
	LHAAP-017	RI	67.50	
	LHAAP-018	RI	51.57	
	LHAAP-018	IRA	42.00	
	LHAAP-024	RI	55.00	
	LHAAP-024	IRA	355.93	
	LHAAP-029	RI	493.66	
	LHAAP-032	RI	10.00	
	LHAAP-035	RI	25.00	
	PBC Longhorn	RAC	2650.03	**$ 3797.13**

Total Prior Year Funds: $87,074.13K

Current Year Requirements

Year	Site Information		Expenditures	FY Total
FY06	LHAAP-032	RI	46.00	
	LHAAP-067	RI	30.00	
	PBC Longhorn	RAC	10,722	
	PBC Longhorn	RAC	168.00	**$10,966K**

Total Future Requirements: **$14,904K**

Total IR Program Cost *(from inception to completion of the IRP):* **$111,380K**

LONGHORN ARMY AMMUNITION PLANT

Military Munitions Response Program

MMRP Summary

Total AEDB-R MMRP Sites/AEDB-R sites with Response Complete: 3/0

AEDB-R Site Types
2 Explosive Ordnance Disposal Areas
1 Unexploded Munitions/Ordnance

Most Widespread Contaminants of Concern: UXO

Media of Concern: Soil and groundwater

Total MMRP Funding

Prior years (up to FY05):	$ 1,133K
Current Year (FY06):	$ 64K
Future Requirements (FY07+):	$5,522K
Total:	$6,719K

Duration of MMRP
Year of MMRP Inception: 2002
Year of MMRP RIP/RC: 2014
Year of MMRP Completion Including LTM: 2047

MMRP Contamination Assessment

MMRP Contamination Assessment Overview

The Phase 3 Army Range Inventory was completed at Longhorn Army Ammunition Plant in May 2003. The inventory identified three sites as eligible for the MMRP. The Phase 3 Inventory serves as the preliminary assessment under CERCLA. A site inspection is scheduled to begin in October 2005.

MMRP Cleanup Exit Strategy

The installation plans to complete the RI/FS in FY2007.

2002

- CTT Range Inventory

LONGHORN ARMY AMMUNITION PLANT

Military Munitions Response Program Site Descriptions

LHAAP-001-R-01
SOUTH TEST AREA/BOMB TEST AREA

SITE DESCRIPTION

This site is also known as LHAAP-027. The South Test Area/Bomb Test Area is approximately 79 acres and located southeast of Avenue P and the magazine area at the end of 70th street, near the southern boundary of LHAAP. The site was constructed in 1954 and used by Universal Match Corporation for testing photoflash bombs that were produced at the facility until about 1956. The bombs were tested by exploding them in the air over an elevated, semi-elliptical earthen test pad. Bombs awaiting testing were apparently stored in three earth-covered concrete bunkers. The bombs tested were 150-pound M120/M120A photoflash bombs filled with photoflash powder and containing a black powder booster charge for bursting the bomb and a timed nose fuse.

STATUS

REGULATORY DRIVER: CERCLA

RAC: Moderate Risk

CONTAMINANTS OF CONCERN: UXO

MEDIA OF CONCERN: Soil, Groundwater

PHASES	Start	End
PA	200202	200305
SI	200402	200510
RI/FS	200503	200612
RD	201210	201304
RA(C)	201210	201409
LTM	201410	204409

RC: 201409

The location of the site for this purpose was not ideally suited to the task as fragments from this testing landed beyond the installation boundary. By June 1954, static testing of photoflash bombs had been discontinued because of the possibilities of damage and injuries beyond the installation boundary. During the late 1950s, illuminating signal devices were also demilitarized within pits at the site. During the early 1960s, leaking production items were demilitarized in the area. The May 1997 Final RI Report for Group I Sites indicates approximately 52,000 1/2 and 1-pound photoflash cartridges were demilitarized at the site in the early 1980s.

In 1982, investigations included installation and sampling of two wells and three shallow soil samples. Explosives, metals, chloride and sulfate were detected above background levels in the soil samples. In January 1998, a No Further Action ROD was signed by the USEPA based upon the site-specific risk analysis for human and ecological exposure to the COPCs for the site.

In 2004, EOD, Fort Polk blew in place (BIP) one 155 mm white phosphorous round. A reported demolition site was identified on the NW perimeter of this site. This was added to the investigation. An EE/CA is underway and is expected to be completed in FY07.

CLEANUP STRATEGY

Soil and waste removal may be needed. MEC institutional controls and monitoring is expected.

LHAAP-002-R-01
STATIC TEST AREA

SITE DESCRIPTION

This site is also known as LHAAP-053. The Static Test Area is located in the east-central portion of LHAAP and covers an area approximately 27 acres. The area was previously used for rocket motor, red phosphorus smoke wedge, and illuminating candle testing. The last activity at this site was demilitarization by ignition of Pershing rocket motors performed on test stands in 1991. All or a portion of this site had interim operating status under RCRA as an OB/OD unit, but the permit request was withdrawn by the U.S. Army and the site has not operated since 1991. Currently, the US Army is placing this site within the MMRP. However, the Army reserves the right to reclassify this site's DERP eligibility as additional guidance becomes available. An EE/CA is underway and is expected to be completed in FY07.

STATUS

REGULATORY DRIVER: CERCLA

RAC: Low Risk

CONTAMINANTS OF CONCERN: UXO

MEDIA OF CONCERN: Soil

PHASES	Start	End
PA	200202	200305
SI	200402	200510
RI/FS	200503	200612
RD	201210	201304
RA(C)	201210	201404
LTM	201710	204709

RC: 201404

CLEANUP STRATEGY

It is expected that the EE/CA will result in a recommendation for no further action.

LHAAP-003-R-01
GROUND SIGNAL TEST AREA

SITE DESCRIPTION

This site is also known as LHAAP-054. The Ground Signal Test Area encompasses approximately 80 acres and is located in the southeastern portion of LHAAP. The site was used intermittently starting in April 1963 for aerial and on-ground testing and destruction of a variety of devices, including red phosphorus smoke wedges, infrared flares, illuminating 60 and 81 mm mortar shells, illuminating 40 to 155 mm cartridges, button bombs, and various types of explosive simulators. The site was also used intermittently over a 20-year period for testing and burnout of rocket motors from Nike-Hercules, Pershing, and Sargent missiles. Around 1970, one of the Sargent rocket motors exploded in an excavated pit near the center of the site. Debris was reportedly placed in the resulting crater and backfilled. From late 1988 through 1991, the site was also used for burnout of rocket motors in Pershing missiles destroyed in accordance with the INF Treaty between the U.S. and the former Soviet Union. A No Further Action ROD for HTRW under CERCLA was signed in January 1998. The site is currently undeveloped.

STATUS

REGULATORY DRIVER: CERCLA

RAC: Not Required

CONTAMINANTS OF CONCERN: UXO

MEDIA OF CONCERN: Soil, Groundwater

PHASES	Start	End
PA	200202	200305
SI	200402	200510
RI/FS	200503	200612
RD	201210	201304
RA(C)	201305	201409
LTM	201410	204409

RC: 201409

In December 2004, EOD, Fort Polk blew in place (BIP) 105 mm and 81 mm rounds. An EE/CA is underway and is expected to be completed in FY07.

CLEANUP STRATEGY

Soil and waste removal may be needed. MEC institutional controls and monitoring is expected.

MMRP Schedule

Initiation of MMRP: 2002

Past Phase Completion Milestones

SI:	200510
RI/FS:	200612
RD:	201304
RA(C):	201409
LTM	204709

Projected ROD/DD Approval Dates: None

Projected Construction Completion: 2014

Schedule for Five Year Reviews: Unknown

Estimated Completion Date of MMRP including LTM: 2047

Prior Years Funds

Total Funding up to FY04: $ 298K

Year	Site Information	Expenditures	FY Total
FY05	SI	17,902	
	EE/CA	751,000	**768,902**

Total Funding FY05: $ 769K

Current Year Requirements

Year	Site Information	Expenditures	FY Total
FY06	EE/CA	64,000	

Total Funding FY06: $ 64K

Total Future Requirements: **$5,522K**

Total MMR Program Cost *(from inception to completion of the MMRP):* **$6,719K**

Community Involvement

While the Army leads the IRP at LHAAP, a close working relationship with the regulatory community has been developed. The local public community has been involved in the past through the Technical Review Committee (TRC) process.

Formation of a Restoration Advisory Board (RAB) was attempted in April 1996 and 1998. The community involvement in the Technical Review Committee process was determined sufficient for community needs. In September 2004, in response to public notices and private mailings, a group of citizens attended a RAB-interest meeting. Enthusiastic support resulted in the first Restoration Advisory Board Meeting in December, 2004. It was well attended. The RAB has created its own symbol, has finalized its charter and has elected the co-chair. The RAB meets quarterly.

Public meetings are held for each proposed plan. These will continue as needed.